

APPENDIX 8-D. DISTRIBUTIONS USED FOR DISCOUNT RATES

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APPENDIX 8-D. DISTRIBUTIONS USED FOR DISCOUNT RATES

8-D.1 INTRODUCTION

DOE derived discount rates for the LCC analysis using data on interest or return rates for various types of debt and equity. To account for variation among households in rates for each of the types, DOE sampled a rate for each household from a distribution of rates for each debt and equity type. This appendix describes the distributions used.

8-D.2 DISTRIBUTION OF MORTGAGE INTEREST RATES

Figure 8-D.2.1 shows the distribution of real interest rates for new home mortgages. The data source DOE used for mortgage interest rates is the Federal Reserve Board's *Survey of Consumer Finances (SCF)* in 1989, 1992, 1995, 1998, 2001, 2004, and 2007.¹ Using the appropriate *SCF* data for each year, DOE adjusted the nominal mortgage interest rate for each relevant household in the *SCF* for mortgage tax deduction and inflation. In cases where the effective interest rate is equal to or below the inflation rate (resulting in a negative real interest rate), DOE set the real effective interest rate to zero.

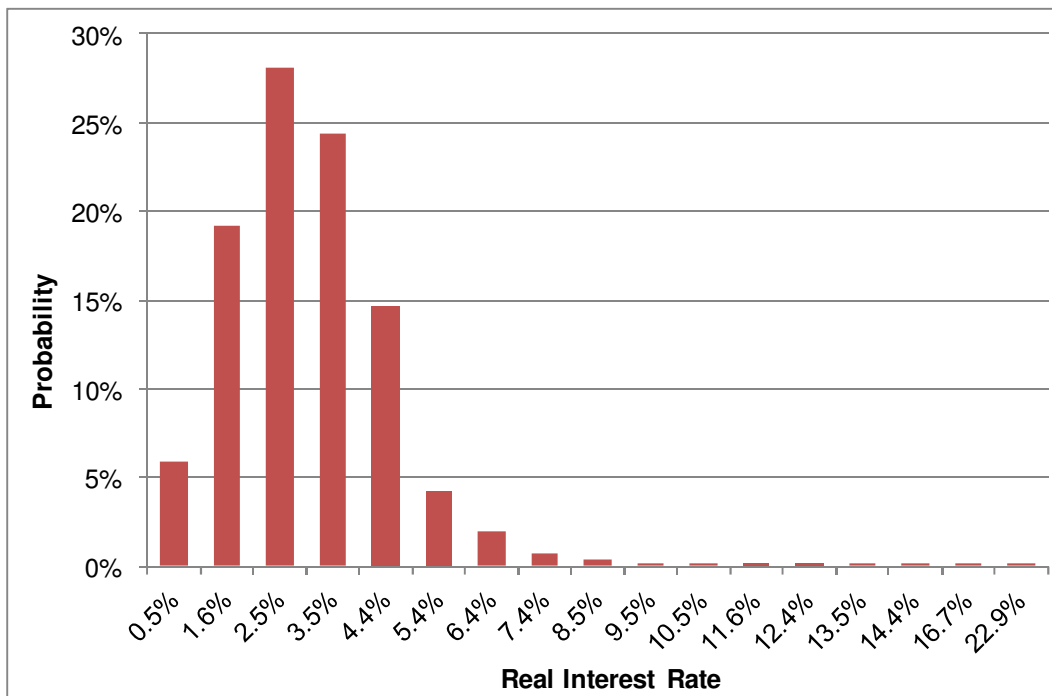


Figure 8-D.2.1 Distribution of New Home Mortgage Interest Rates

8-D.3 DISTRIBUTION OF RATES FOR TYPES OF DEBT AND EQUITY USED TO FINANCE REPLACEMENT HEATING PRODUCTS

Figure 8-D.3.1 through Figure 8-D.3.5 show the distribution of real interest rates for different types of debt used to finance replacement heating products. The data source for the

interest rates for home equity loans, credit cards, installment loans, other residence loans, and other lines of credit is the Federal Reserve Board's *SCF* in 1989, 1992, 1995, 1998, 2001, 2004, and 2007.¹ DOE adjusted the nominal rates to real rates using the annual inflation rate in each year. For home equity loans, DOE calculated effective interest rates in a similar manner as for mortgage rates, since interest on such loans is tax deductible.

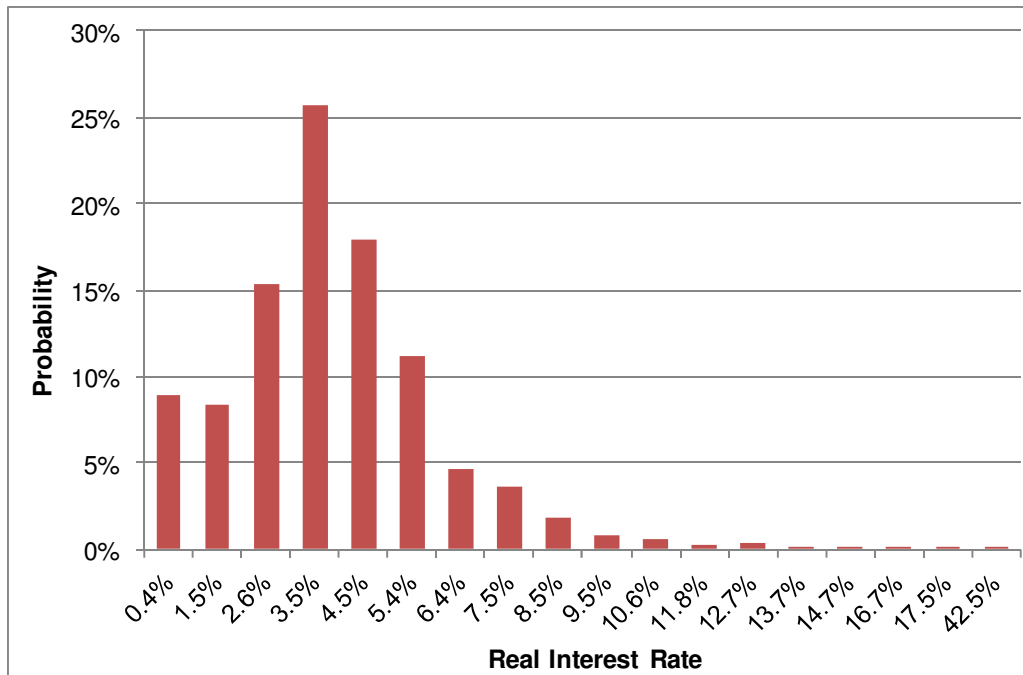


Figure 8-D.3.1 Distribution of Home Equity Loan Interest Rates

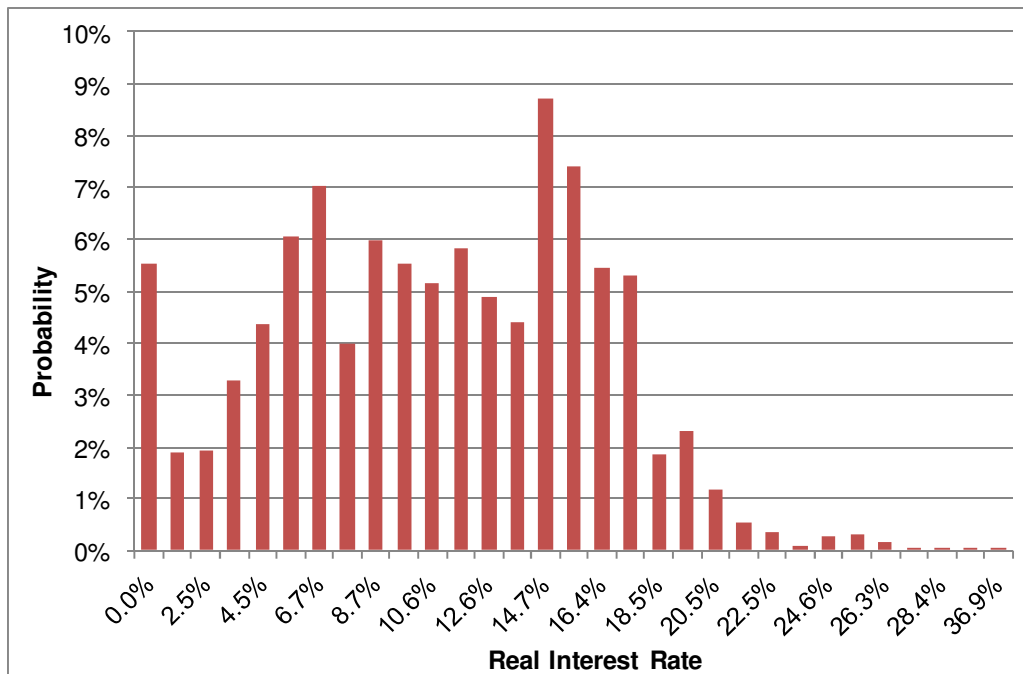


Figure 8-D.3.2 Distribution of Credit Card Interest Rates

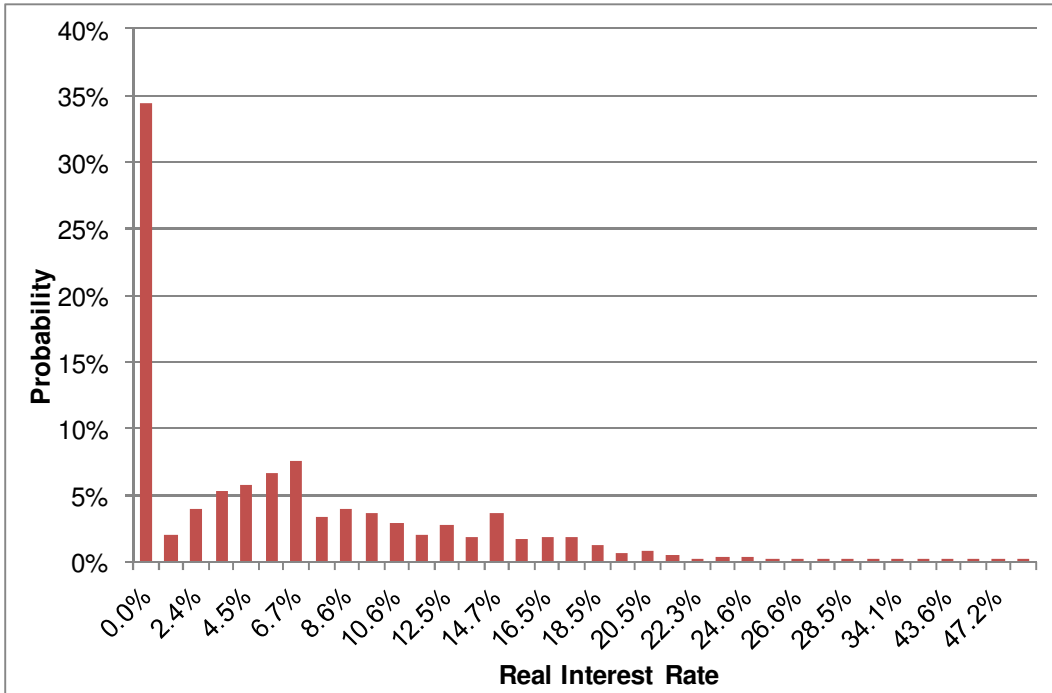


Figure 8-D.3.3 Distribution of Installment Loan Interest Rates

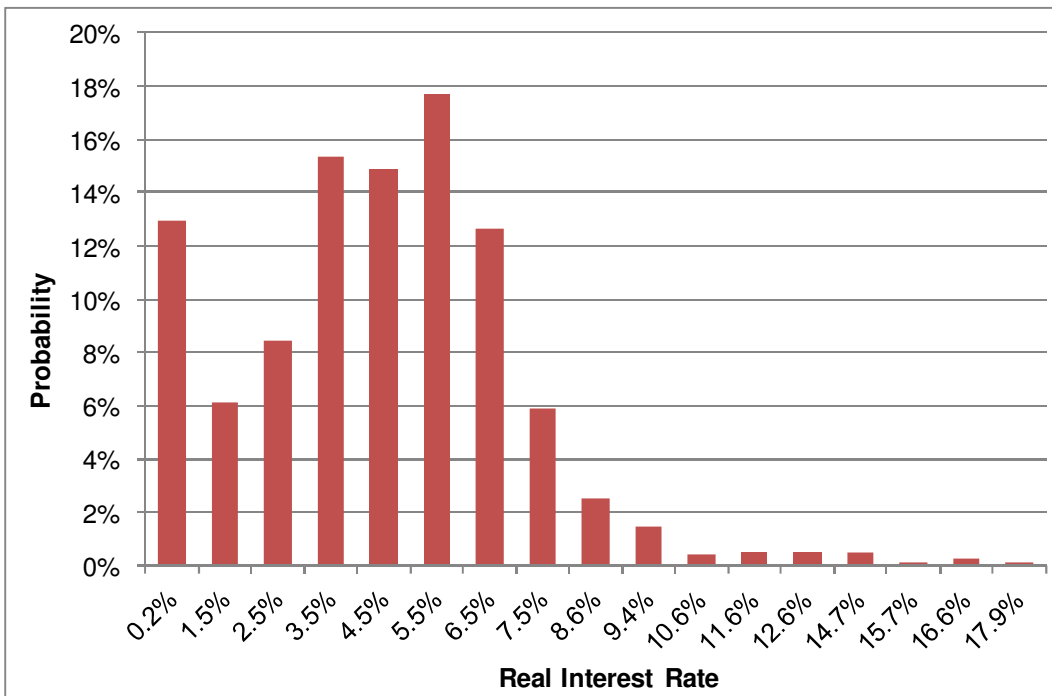


Figure 8-D.3.4 Distribution of Other Residence Loan Interest Rates

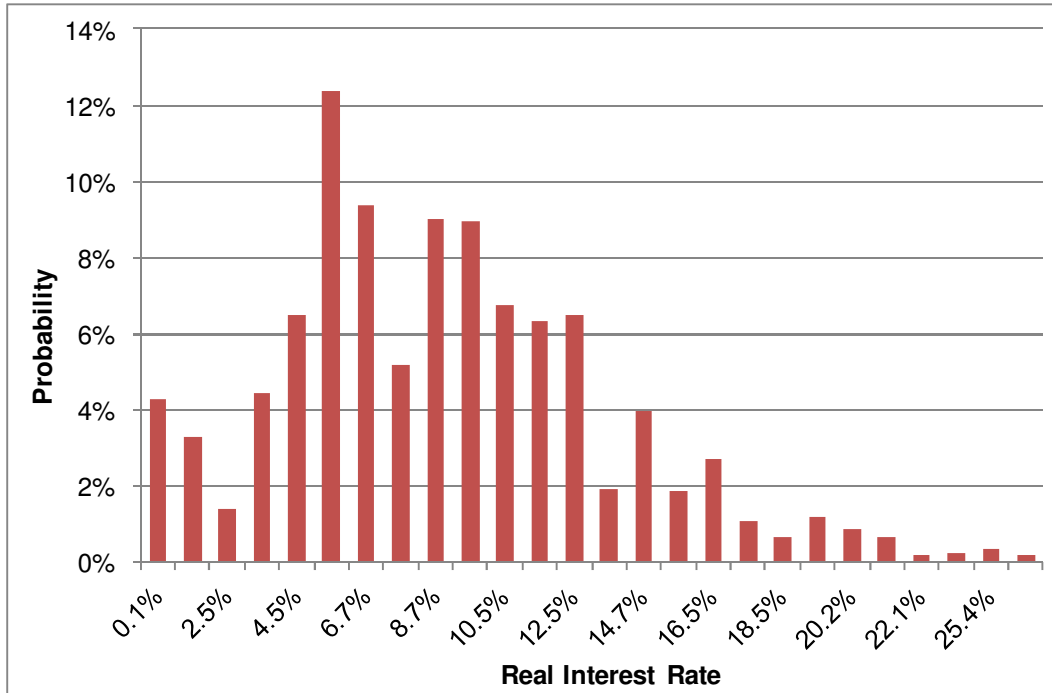


Figure 8-D.3.5 Distribution of Other Lines of Credit Loan Interest Rates

8-D.4 DISTRIBUTION OF RATES FOR TYPES OF EQUITY USED TO FINANCE REPLACEMENT HEATING PRODUCTS

Figure 8-D.4.1 through Figure 8-D.4.6 show the distribution of real interest rates for different types of equity used to finance replacement furnaces. Data for equity classes are not available from the Federal Reserve Board's *SCF*, so DOE derived data for these classes from national-level historical data. The interest rates associated with certificates of deposit (CDs),² savings bonds,³ and AAA corporate bonds⁴ are from Federal Reserve Board time-series data covering 1977 to 2009. DOE assumed rates on checking accounts to be zero. Rates on savings and money market accounts are from Cost of Savings Index data covering 1984 to 2009.⁵ The rates for stocks are the annual returns on the Standard and Poor's (S&P) 500 from 1977 to 2009.⁶ The mutual fund rates are a weighted average of the stock rates (two-thirds weight) and the bond rates (one-third weight) in each year from 1977 to 2009. DOE adjusted the nominal rates to real rates using the annual inflation rate in each year.

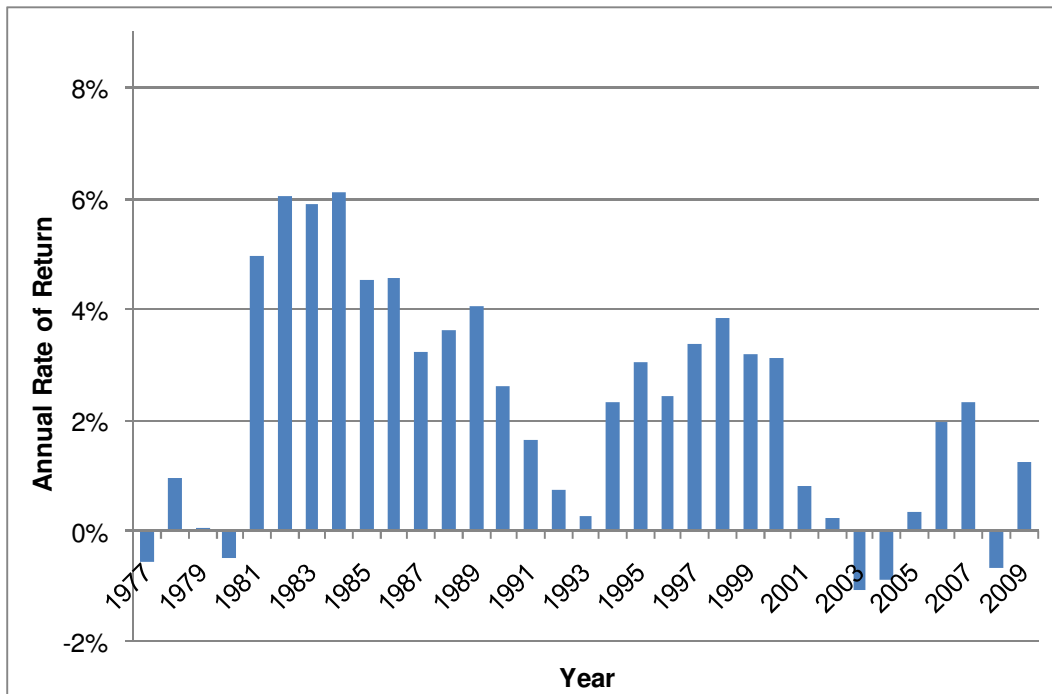


Figure 8-D.4.1 Distribution of Annual Rate of Return on CDs

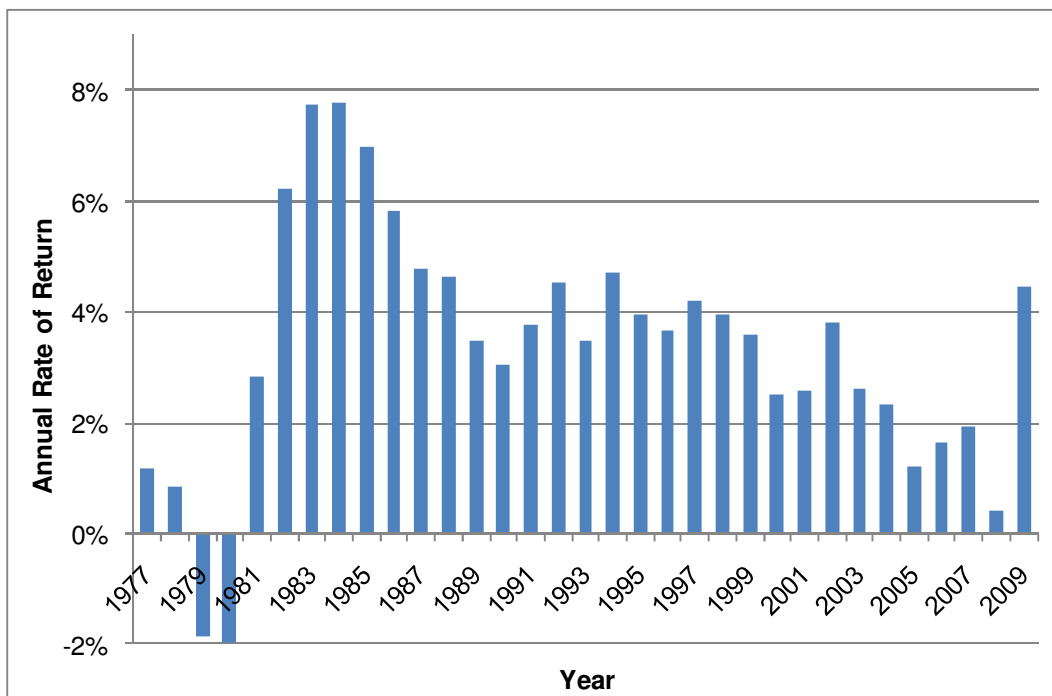


Figure 8-D.4.2 Distribution of Annual Rate of Return on Savings Bonds

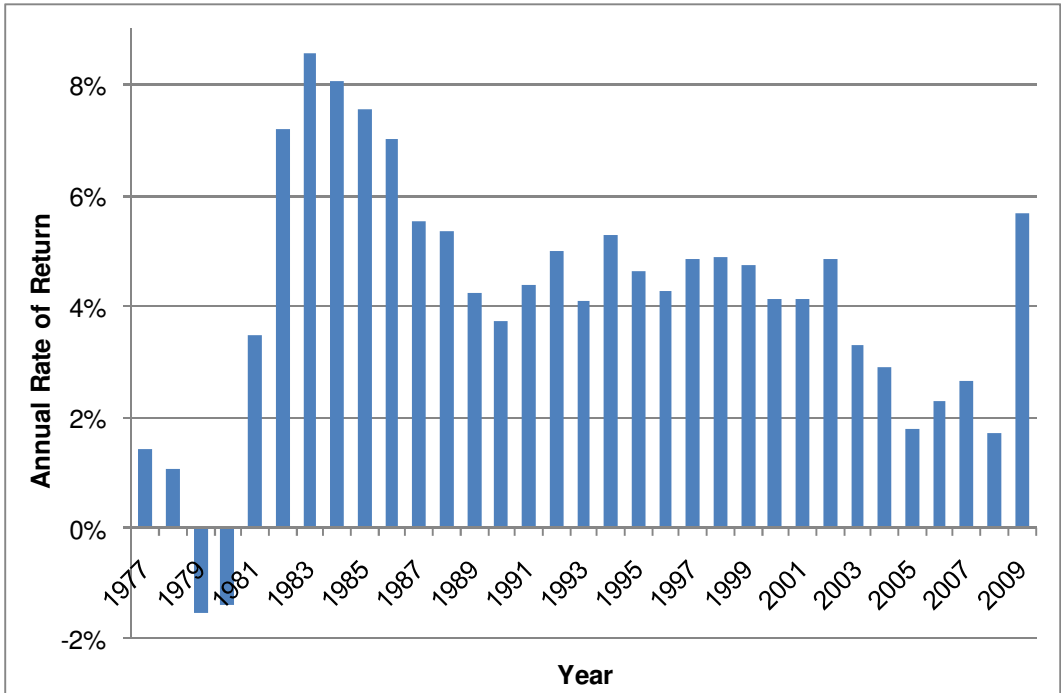


Figure 8-D.4.3 Distribution of Annual Rate of Return on Corporate AAA Bonds

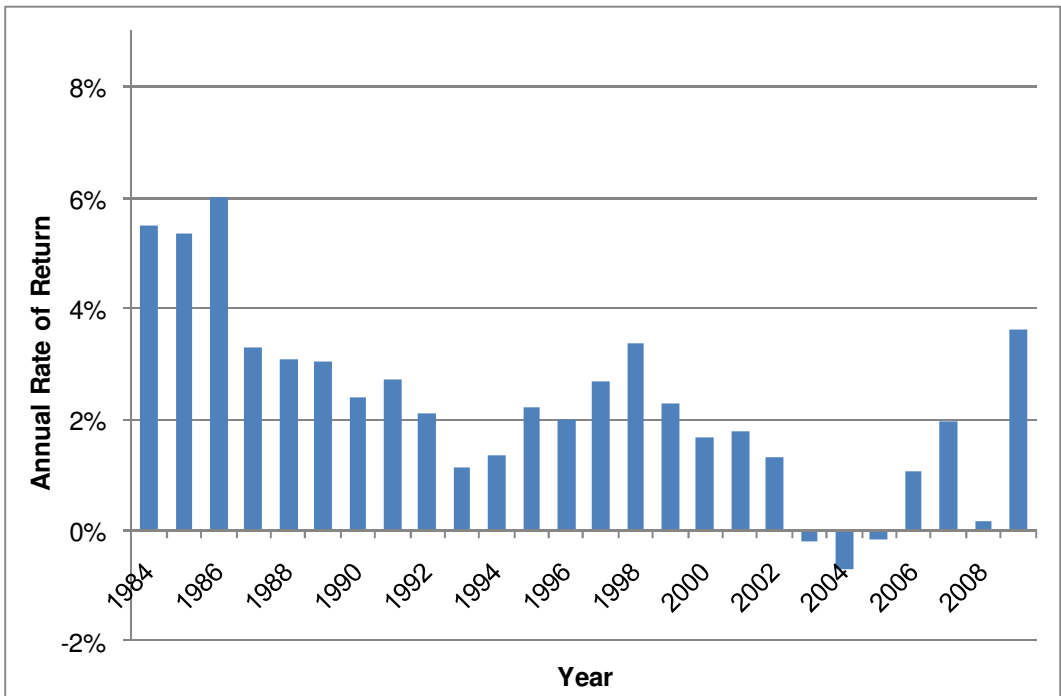


Figure 8-D.4.4 Distribution of Annual Rate of Savings Accounts

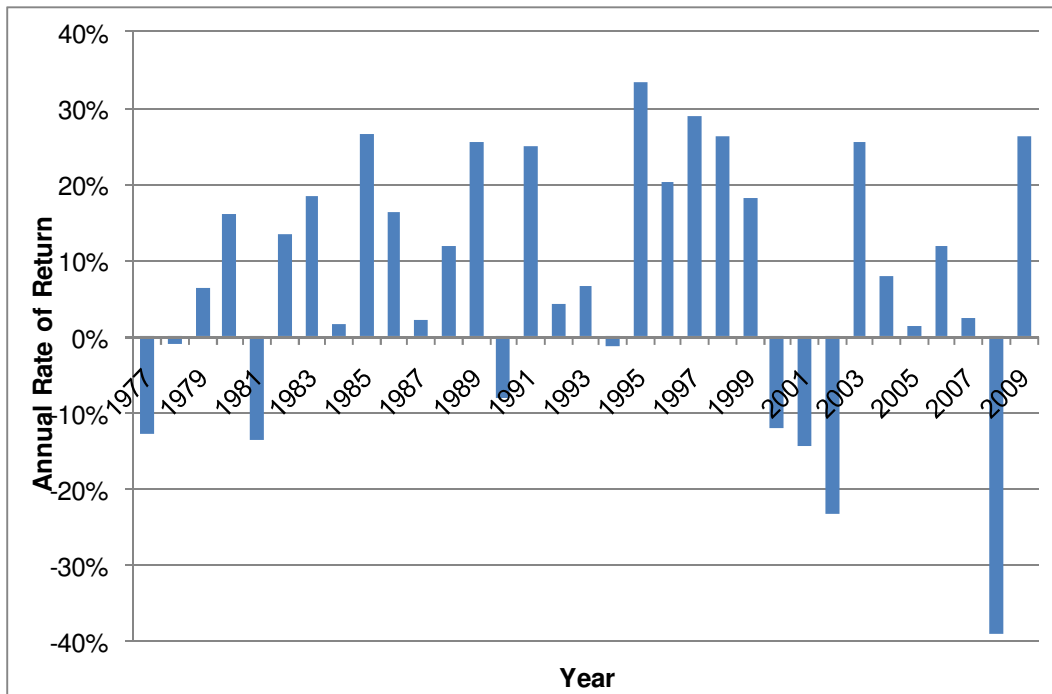


Figure 8-D.4.5 Distribution of Annual Rate of Return on S&P 500

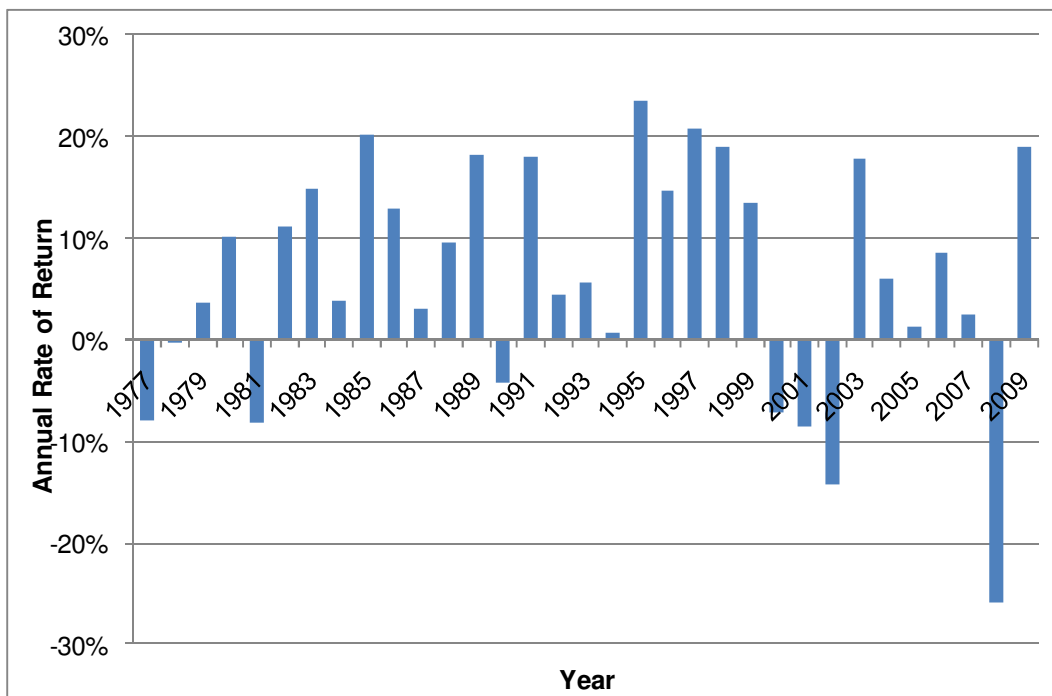


Figure 8-D.4.6 Distribution of Annual Rate of Return on Mutual Funds

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